## *Nonattainment Permitting*

## I thought Ozone was good?

The Clean Air Act (CAA) identifies six common air "criteria" pollutants found all over the U.S. These pollutants can affect health, harm the environment and cause property damage. The United States Environmental Protection Agency (EPA) calls these pollutants criteria pollutants because the agency has developed health-based criteria (science-based guidelines) as the basis for setting permissible levels.

Ozone is a criteria pollutant. Ozone can be good or bad, depending on where it is located. Ozone in the stratosphere high above the Earth protects human health and the environment, but ground-level ozone is the main harmful ingredient in smog. Ground-level ozone is produced by the combination of pollutants from many sources including industrial smokestacks, cars, paints, and solvents.

To learn more about ground-level ozone, please follow this link:
http://www.scdhec.gov/environment/baq/ozone/faq.html

## What does nonattainment mean?

There are National Ambient Air Quality Standards (NAAQS) for each criteria pollutant. These standards apply to the concentration of a pollutant in outdoor air. If the air quality in a geographic area meets or does better than the national standard, it is called an attainment area; areas that do not meet the national standard are called nonattainment areas. In 2004, the EPA revised the ground-level ozone standard making it much more protective of human, animal and plant life.

Often, wind blows ground-level ozone forming pollutants (Oxides of Nitrogen –NO x and Volatile Organic Compounds-VOCs) away from their sources. Ground-level ozone-forming reactions take place while the pollutants are being blown through the air by the wind. This explains why this type of air pollution is often more severe miles away from the source of ground-level ozone-forming pollutants than it is at the source.

Since pollutants (such as NO x and VOCs) travel across county and state lines, when a metropolitan area covers more than one state (for instance the Charlotte metropolitan area that includes part of York County in SC), their governments and air pollution control agencies must cooperate to solve the problem. Governments must work together in a multi-state effort to ensure the air attains the national air quality standards. The states use the permit system outlined in the Clean Air Act to make sure factories, power plants, and other sources meet their clean-up goals.

## How is an area designated "nonattainment"?

The EPA classifies all nonattainment areas according to how badly polluted the areas are. The 1990 CAA uses this classification system to tailor clean-up requirements to the severity of the pollution, and set realistic deadlines for reaching clean-up goals. Not only must nonattainment areas meet deadlines, states with nonattainment areas must show the EPA that they are moving forward on cleanup before the deadline, making reasonable further progress.

The designation of attainment or nonattainment is based on data collected from monitors at locations in urban and rural settings. The data is collected by each state and submitted to the EPA. The EPA then designates the area as attainment or nonattainment with the ozone standard. The EPA announced these designations for the ground-level ozone standard on April 15, 2004. If an area is designated as nonattainment it informs the public that the air in the area is unhealthy to breathe, and the area must develop and implement control plans to reduce ground-level ozone-forming pollution.

In addition to air quality data, the EPA also considers other key factors in designating an area's attainment status. They consider emissions, traffic and commuting patterns, population density, and expected growth, and use this information to decide if additional counties should be included in the consolidated/metropolitan statistical area (C/MSA). The C/MSA is the presumptive nonattainment default boundary for areas classified as having serious air pollution for one or more air pollutant. This means that the area classified as nonattainment includes all contributing sources. C/MSAs ensure that sources whose pollutants are carried by the wind across state and county lines are also included in the clean-up effort.

## What is a State Implementation Plan (SIP)?

When an area is designated as nonattainment, the affected states must draft a plan known as a state implementation plan (SIP) to improve air quality in the nonattainment areas. The plan outlines the measures the state will take in order to meet national air quality standards. Through this plan, the states design their approach to reducing the ozone level in the air and emissions of ozone precursors. In North and South Carolina, these air pollution control measures include a process called New Source Review.

## What is New Source Review?

The New Source Review (NSR) process was established by the US Congress as part of the Clean Air Act Amendment of 1977. NSR is a preconstruction permitting program that serves two important purposes. It ensures that air quality is not significantly degraded from the addition of new and modified factories, industrial boilers, and power plants. In areas with unhealthy air (nonattainment areas), NSR assures that new emissions do not slow progress toward cleaner air. In areas with clean air (attainment areas), especially pristine areas like our National Parks, NSR assures that new emissions do not significantly worsen air quality.

The second important function provided by NSR programs is they assure people that any large new or modified industrial source in their neighborhoods will be as clean as possible, and that advances in pollution control occur concurrently with industrial expansion. NSR permits in SC are issued through SCDHEC, Bureau of Air Quality.

## How does New Source Review improve air quality?

NSR permits are legal documents that the source must follow. They specify what construction is allowed, what emission limits must be met, and often how the source is to be operated. They may contain conditions to make sure that the source is built to match parameters specified in their application. Some limits in the permit may be there at the request of the source to keep them out of other requirements. To assure that sources follow the permit requirements, permits also contain monitoring, record keeping, and reporting requirements.

NSR requires stationary sources of air pollution to get permits before they start construction. There are three types of NSR permitting requirements: Prevention of Significant Deterioration (PSD), Nonattainment NSR (NA NSR), and Minor Source. PSD permits are required for new major sources or a major source making a major modification, and is used as a stand-alone permit only in attainment or unclassifiable areas. PSD permits require a facility to install the Best Achievable Air Control Technology (BACT), and to perform both an air quality analysis and an additional impact analysis to ensure the new emissions will not cause or contribute to a violation of any applicable NAAQS or PSD increment.

Minor NSR is for pollutants from stationary sources that do not require Prevention of Significant Deterioration (PSD) or NA NSR permits. The purpose of minor NSR permits is to prevent the construction of sources that would interfere with attainment or maintenance of a NAAQS or violate the control strategy in nonattainment areas. Also, minor NSR permits often contain permit conditions to limit the sources emissions to avoid PSD or NA NSR.

## How will I know when a n NSR permit is up for review?

The process of issuing an NSR permit begins with the facility submitting a permit application. The SCDHEC then reviews the application to determine if it is complete enough to begin processing. If it is, then a draft permit is prepared. At this point, the draft permit is placed on public notice for a 30-day public comment period. The public notice includes a deadline for submitting comments and requesting a public hearing. Public Notices are published in a newspaper in the area of the facility, as well as posted on the SCDHEC website. If comments are received during the public comment period, the draft permit may be revised based on the comments received. In some cases, the revised draft permit is then opened for public comment through a second Public Notice. Once this process is complete, a final decision is made on the permit. This final decision will be to issue the permit as drafted, deny the permit, or issue the permit with modifications.

## How are emissions calculated?

Much of the data analyzed in the NSR permitting process comes from air quality models that can estimate the amount of emissions a facility will produce and how those emissions will affect our air. These air quality models use mathematical and numerical techniques to simulate the physical and chemical process that affect air pollutants as they disperse and react in the atmosphere. The models are based on meteorological data, as well as source information like emission rates and stack height. They are important to our air quality management system because they are widely used by agencies to identify source contributions and assist in the design of effective reduction strategies.

Air quality models can be used during the permitting process to verify that a new source will not exceed standards, or, if necessary, determine appropriate additional control requirements. In addition, air quality models can also be used to predict future pollutant concentrations from multiple sources in order to determine if the area will remain or when it will come into compliance with national air quality standards.

## What is involved in Nonattainment NSR?

Nonattainment NSR (NA NSR) applies to new major sources or major modifications at existing sources for pollutants where the area the source is located in is not in attainment with the National Ambient Air Quality Standards. Nonattainment NSR requirements are customized for the nonattain ement area. All nonattainment NSR permits require the installation of the lowest achievable emission rate (LAER), emission offsets, and an opportunity for public involvement.

The Lowest Achievable Emission Rate (LAER) is required to be installed in all major new or modified sources in nonattainment NSR program areas. LAER is the most stringent emission limitation derived from either of the following: the most stringent emission limitation contained in the SIP for a similar source, or the most stringent emission limitation achieved in practice by a similar source. The emission rate may result from a combination of emission-limiting measures such as a change in the raw material process, a process modification, or the addition of emission control devices.

The RACT/BACT/LAER Clearinghouse (RBLC) database is named for the acronyms for different program requirements established by the Clean Air Act. Reasonably Available Control Technology (RACT) is required on existing sources in areas that are in nonattainment. Best Available Control Technology (BACT) is required on new or modified sources in attainment areas. Lowest Achievable Emission Rate is required for major new or modified sources in nonattainment areas. The RBLC contains information on what emission control strategies has been required for each of the above categories in order for a facility to obtain their air permit. The RBLC also contains recent noteworthy prevention and control technology decisions.

## What are offsets?

A major source or major modification of a source planned in a nonattainment area must obtain emissions reductions as a condition for approval. The emission reductions are generally obtained from existing sources located in the vicinity of the source. The emission reductions, generally called "offsets," must offset the emissions increase from the new source or major source modification to ensure reasonable progress toward meeting the NAAQS. The emission reductions must also provide a net air quality benefit. The purpose of acquiring emissions offsets is to allow an area to move toward attainment of NAAQS while still allowing some industrial growth.

The baseline from which emissions offsets are obtained are set forth in the state implementation plan (SIP). This means that offsets are based on emission reductions below these SIP limits. Offsets must be creditable, quantifiable, federally enforceable, and permanent. Currently, South Carolina does not yet have an emissions offset plan in place for handling emissions credits. However, North Carolina is close to finalizing its plan for handling emissions offsets.

## What happens when we meet our NAAQS?

Once a nonattainment area meets the National Ambient Air Quality Standards and the additional redesignation requirements outlined in the Clean Air Act, the EPA will designate the area to attainment as a "maintenance area." By utilizing the air quality management tools provided by the CAA, namely the state implementation plan and New Source Review, South Carolina can ensure that our citizens maintain and improve upon our good air quality.